

**DARPA-BAA-15-36**  
**Building Resource Adaptive Software Systems (BRASS)**  
**Frequently Asked Questions**

As of April 28, 2015

- Q26. Was the total funding \$8M-10M for the whole program to be distributed to all of the teams, or just per TA1/TA2/TA3 integrated team? The wording in the BAA is a little ambiguous ("Total Funding" vs "for an integrated effort:").
- A26. The funding amount in the BAA refers to a single effort and does not reflect the total funding for the program.
- Q25. Do you consider the code used for synthesizing Field-Programmable Gate Arrays (FPGAs) as "software" in the BRASS concept? Could reconfigurable FPGAs be a part of a candidate solution?
- A25. Potentially, but the platform challenges in this case should be made clear in the proposal. BRASS is focused on software solutions, so compilation techniques targeting FPGAs consistent with the program's goals are in scope.
- Q24. Would you accept a TA1 platform simulation instead of physical hardware? Or perhaps a combination of platform with simulated sensors, for example in a type of CIL?
- A24. Simulations are possible, but the preference is for physical platforms in which quantifiable and compelling evaluation studies can be conducted.
- Q23. In the Proposers Day presentation slide 4, all the state-of-the-art technologies appear to be static analysis or compile-time technologies. Are novel dynamic analysis technologies for determining application intent (Discovery) and departures from application intent (Analytics) within the scope of BRASS?
- A23. Yes, dynamic analysis technologies are within scope.
- Q22. What size of teams is this program targeting: a few large, interoperational teams with many institutions, or many small teams?
- A22. The size of teams has not been predetermined. Small independent proposers are encouraged to propose to the BAA, as are agile teams from larger firms working along or composed of industry-leading, special purpose, and (perhaps) short-duration sub-contractors. Non-traditional government providers are encouraged to propose to this BAA, either on their own or in a teaming partnership with a firm who has experience in government contracting.
- Q21. (a) How much weight do you put on the presence of an industrial partner for a team in this project in the evaluation of a proposal? (b) Will university-only teams be considered?
- A21. (a) The presence of an industrial partner is not a requirement to submit to the BAA. (b) Yes.

- Q20. How much teaming do you expect and how would the teams in this project be coordinated?
- A20. Early in Phase 1, performers in TA1, TA2, and TA3 will be grouped into a design team, each led by a TA1 performer. Each such team will be responsible for producing before each Platform Demonstration Workshop, a complete Discovery and Analytics System (DAS). This system should be amenable for evaluation by the Evaluator. Thus, close collaboration between TA1, TA2 and TA3 teamed performers is expected. Furthermore, all performers under the program will be expected to work cooperatively with one another to develop, integrate, implement, and validate BRASS capabilities. To facilitate the open exchange of information, performers may have an Associate Contractor Agreement (ACA) clause included in their award.
- Q19. What is the total amount of funding? What is the size of a typical grant?
- A19. DARPA anticipates multiple awards in Technical Areas 1, 2, and 3. The anticipated award amount for a single integrated TA1, TA2, and TA3 effort will range between \$8M-\$10M.
- Q18. Does this request target (i) a fully automatic, compiler solution, or (ii) an interactive, semi-automated tool-based software engineering solution?
- A18. The preference is for (i), however, (ii) is still in scope.
- Q17. Do you have in mind certain "reconfigurable system resources" in this program?
- A17. Reconfigurability should be used in the broadest sense and include reconfiguration of both logical and physical resources.
- Q16. Are there metrics for level of reconfigurability that the program will use to evaluate proposed technologies?
- A16. Please refer to A13 in the FAQs.
- Q15. Do you have in mind a certain infrastructure/ test bed?
- A15. Please refer to A2 in the FAQs.
- Q14. (a) What kinds of deliverables are expected? (b) Should they be open-source?
- A14. (a) Please refer to the "Deliverables" section of the BAA. (b) The program will emphasize creating and leveraging open architecture technology. Intellectual property rights asserted by proposers are strongly encouraged to be aligned with open source regimes, but proprietary solutions are not discouraged.
- Q13. What is the definition of success and how will it be measured? For example, by delivering industrial-quality software?
- A13. BRASS has several quantifiable objectives, among which are: (1) Reduce the time to repair vulnerabilities and port useful functionality in complex systems from human time to machine time; (2) Allow various syntactic and semantic forms of adaptation to be applied over large code bases; (3) Enable adaption to be generally applicable for a significant fraction of the code base comprising an application and the underlying ecosystem; and (4)

Sufficiently reduce analytics and runtime monitoring overhead to enable adaptive solutions to be effective in continuously operational, deployed environments.

Q12. If we are expected to travel to DARPA meetings, what will be the frequency of the meetings, and where will they be?

A12. There will be one PI meeting in Phase 1, held approximately 8 months after the kick-off meeting. There will be one PI meeting in both Phase 2 and Phase 3, held roughly 8 months from the beginning of each phase. Platform Demonstration Workshops will be held at the end of each phase. For budgeting travel, assume that program reviews will be held either in Washington, D.C., or at the performer's location.

Q11. Do you have a particular DoD customer in mind?

A11. Currently, DARPA does not have a DoD customer in mind.

Q10. Will the slides of the Government presentations become available to the participants?

A10. Yes. The slides are posted at:

[http://www.darpa.mil/Our\\_Work/I2O/Programs/Building\\_Resource\\_Adaptive\\_Software\\_Systems\\_\(BRASS\).aspx](http://www.darpa.mil/Our_Work/I2O/Programs/Building_Resource_Adaptive_Software_Systems_(BRASS).aspx)

Q9. Given the large size of the award for an integrated proposal, are teams with only Research Universities/Schools encouraged/considered?

A9. The award size for an integrated proposal may be less than \$8M. Any compliant proposal submission will be considered.

Q8. In the phase 3 evolution descriptions, can you explain more about what you meant by autonomy?

A8. Autonomous systems typically encode decisions about how they should respond to changing environments as part of their architecture design. BRASS envisions the dynamic discovery of such decisions, facilitating greater robustness and flexibility.

Q7. Is the \$8-\$10M spread across the 3 TAs, 3 Phases and all performers? Are all phases firm cost proposal?

A7. DARPA anticipates multiple awards in Technical Areas 1, 2, and 3. The anticipated award amount for a single integrated TA1, TA2, and TA3 effort will range between \$8M-\$10M. The types of instrument that can be awarded are procurement contracts, cooperative agreements or other transactions.

Q6. Can the SW adaptation process involve programmer-in-the-loop?

A6. Yes.

Q5. There is a fundamental difference between anticipated change (design for change, frameworks, architectures, product lines) and unanticipated change that breaks fundamental assumptions. The solicitation seems to jump between the two. Would a

proposal that addresses only anticipated change (in a broad sense of exchanging any modules while preserving some interfaces/architecture) be sufficient?

A5. Yes.

Q4. Is making changes easier for developers (which might include IDE support) in scope? Or is the focus primarily on automation and getting developers out of the loop?

A4. The preference is on automation and getting developers out of the loop, however, proposing technology that makes changes easier for developers is still in scope.

Q3. Do you envision TA2/TA3 only proposals as natural or exceptions? In other words do you encourage universities to put forward such proposals expecting to be paired up with TA1?

A3. Proposers may submit a single proposal as a prime contractor that addresses TA1-TA3 (or some subset thereof). However, TA2 and TA3 proposals that are not part of a collaborative TA1 effort must nonetheless clearly justify the utility of their approach in the framework of a potential platform.

Q2. The BAA seems fairly intent on solutions for different platform types. What level of differentiation between platform types does the BAA desire?

A2. The BAA mentioned several exemplar platforms (i.e., autonomous and robotic systems, embedded systems, geo-distributed systems, heterogeneous scalable multiprocessors, cloud infrastructure, mobile platforms, high-assurance systems, coordinated platform ensembles, storage and file systems, and diverse hardware infrastructures). However, the proposer is not limited to these platforms and is free to choose any platform that is consistent with achieving the goals of the program.

Q1. Would the BAA permit an institution that has multiple business units all with different technology focus to submit multiple, separate proposals, potentially addressing differing tech area?

A1. Yes. Separate research groups inside a large business represent separate entities and, thus, each such research group is allowed to submit a proposal as a prime towards TAs 1-3.